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ABSTRACT

The United States is experiencing a change in the school population at all levels of the education system. There is a compelling need to develop an integrated perspective on the literacy needs of the newly diverse population of speakers of English as a Second Language (ESL), so that all language minorities may develop literacy skills for both immediate circumstances and future needs. Research on the optimal age for cognitive development in second language learning suggests that limited-English-proficient students (LEPs) should be enrolled in bilingual education programs whenever possible. The exclusionary English-only movement and competency-based ESL literacy programs endanger the real literacy education of LEPs and socialize students for a limited range of working-class roles. Neglect of certain skill areas also creates problems at higher instructional levels. Changes are needed in education at all levels to ensure that literacy education is appropriate and thorough. These changes include resisting the English-only movement, designing bilingual and ESL programs to fit the specific population, integrating ESL and content instruction, increasing parent and community involvement in the child's second language learning, training ESL and bilingual education teachers professionally, supporting writing across the curriculum, and doing a better job of integrating and training international students. Contains 44 references. (MSE)

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Second Language Literacy: Functional Competence for the Future

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The United States is truly becoming a multicultural society, according to the 1991 Census, which revealed that one in four Americans now comes from a minority background. Many of these are students who speak English as a second language. In addition, there were 386,700 foreign students studying in the U.S.A. in 1989-1990 (Zikopoulous, 1991). Identifying the number of Limited English Proficient (LEP) students in elementary, secondary, higher and adult education is more difficult. Olsen (1989) tried to determine how many LEP students were enrolled in K-12 and adult education programs but found instead that the criteria used by states and local authorities for identifying LEP students varied considerably, with several states not even reporting data. These varying criteria prompted him to embark on a national survey, which led him to believe that 9% of students enrolled in K-12 may be LEP. Furthermore, LEP students were not identified in the same way. Test score criteria ranged from the 22nd to the 50th percentile, with considerable variety in the type of test administered. Given such divergent standards, it is highly likely that many students are not identified as LEP although they function at a level too basic to allow them access to further education or higher job opportunities. States which tended to use a broader definition of LEP (such as Florida and New York) were estimated to have as many as 22.5% LEP students. In fact , Olsen estimated that there may be as many as three to six times as many students in need of instruction than the figures reveal (Olsen, 1989, p. 478).

We are experiencing a change in the population in the education system at all levels. In 1981, one study estimated that there would be 5.1 million bilingual and non-English speaking students aged 5 to 14 by the year 2000 (Oxford et al., 1981). In higher education, foreign nationals now outnumber U.S. citizens in graduate colleges of engineering, and in computer science and mathematics. Students from South and East Asia constitute 54%, or 208,100 of the total, with China as the leading country of origin (Zikopoulous, 1991). It is likely that these numbers will continue to climb. The number of Chinese students taking the TOEFL examination in preparation for applying for overseas study rose from 26,460 in 1988 to around 100,000 in 1990 ("Chinese Student Flow," 1990). It is more than likely that these Asian students will remain to become the faculty members and business managers of the future. The same article describes

the concern of the Chinese government about the very low return rate - often as low as ten percent - of students from major Chinese universities.

Obviously, we face a compelling need to develop an integrated perspective on the literacy needs of such a diverse ESL population in order that all language minorities, whether they be children or adults, immigrants or refugees, unschooled or highly educated, may develop the literacy skills that will take into account not merely their immediate circumstances, but also their future needs. Unfortunately, this task is still regarded as a "thorny issue" (Venezky, 1990, p. 13). In a Symposium at the University of Pennsylvania devoted to exploring and defining literacy, the opening paper described literacy for non-native speakers of English as "political matters best left for others to tackle" (Venezky, 1990, p.13). Venezky was reminded by Macias (1990) that appropriate guidance is available in research that has been conducted into second language acquisition and bilingual education if we are prepared to pay attention to it . Therefore, this paper will argue that we must define second language literacy in light of the knowledge provided by the research, and thereby use our influence to ensure that "political" decisions affecting second language students are also sensibly guided. I take the position that we should support and promote the National Language Policy adopted in 1988 by the Conference on College Composition and Communication. This policy is ideal for a nation of immigrants, calling as it does for full English oral and literate proficiency for both native and non-native speakers, resources to support the "legitimacy" of native languages and dialects, and the promotion of second language proficiency for English and other monolinguals (Smitherman, 1990, p. 116). Consequently, I will attempt to summarize the relevant research on the acquisition of second language proficiency for academic purposes by means of a developmental, or "career path" perspective to support the argument that for each population of ESL students the relevant question must be not "what do they need *now?*" but "what do they need *next?*" Three issues will be addressed in this survey of relevant research findings: first, the relationships among language proficiency, age, and cognitive development ; second, the socio-cultural influences on second language literacy for children and adults; third, the academic tasks and standards in primary, secondary and higher education (and beyond), for which

second language students need to be prepared. Finally, I will recommend some steps that we might consider as a course of action for ensuring that our definition of second language literacy is one that considers the lifetime needs of LEP children and adults, rather than the daily exigencies of situation specific literacy

Age of Acquisition and Cognitive Development

A major issue is whether there is an optimal age to acquire proficiency in a second language. Much of the controversy has centered over whether there is a critical period beyond which language learning abilities decline, or atrophy. Long (1990) has reviewed the literature related to age differences and has concluded that there are "sensitive periods" for language acquisition which limit the degree of proficiency in various areas. Children who learn a second language after age 6-12 will have great difficulty in achieving native-like pronunciation. Those who begin learning in their late teens (around age 15) will likewise rarely achieve full competence in syntax and morphology. Long's analysis supported an explanation for such differences based on the maturational constraints imposed by loss of cerebral plasticity.

However, much of the literature reviewed by Long was limited to second language acquisition in general, often in informal environments. In considering the role of second language literacy it is more important to focus on second language learning for academic purposes in order to determine the role played by age. Collier (1987) examined how long it took 1,548 LEP students in grades K-12 to become proficient enough in English to enable them to be academically successful. The children's achievement was measured on Science Research Associates tests in reading, language arts, mathematics, science, and social studies. Her results lent support to Long's findings in support of maturational factors. The fastest achievers were children who were between 8 and 11 years old on arrival in the U.S. They needed from 5 to 7 years to reach the 50th percentile. On the other hand, children aged 4 to 7, or over 12 on arrival, needed 7 to 10 years to reach the same level. What is particularly significant about her study is that her subjects were limited to "advantaged" students from middle class backgrounds in their own countries who were at grade level at the time of entry. Their parents were also clearly supportive of the role of

education in social and economic advancement. Yet of these children, although some of them succeeded in reaching national averages on the SRA tests, none of them met their schools' standards of around 60th normal curve equivalent (NCE). Clearly, the academic possibilities for college entrance for these students would be limited as they competed with native speakers of English.

Following the study, Collier (1989) attempted to synthesize the available research on second language learning for academic purposes. The few studies available supported Collier's 1987 findings for the same age groups. The most at-risk groups were the very youngest (age 4-7) and the oldest (age 12-15) Neither group succeeded in reaching the 50th NCE on standardized tests, when schooled exclusively in the second language. These results led her to conclude that cognitive development at the time a child began to learn a second language strongly affected academic achievement.

The same conclusions were reached by Saville-Troike (1984) who studied 19 children age 7 to 12 for one school year as they participated in an ESL program and regular English instruction. Her expectation was that there would be little variation in their academic achievement at the end of the year because they had all been matched initially for language proficiency and socio-economic status. However, there were wide discrepancies in the achievements of the children. Saville-Troike's explanation focused on several factors related to success in content area schooling. In the first place, successful academic achievement could not occur without a high degree of vocabulary knowledge. Grammatical accuracy did not seem to be important, and some factors which ESL researchers had shown to be critical for general language proficiency, such as communicative competence in social interactions, were not important in content area learning. Finally, the amount of concept learning available and accessible in the first language was of great importance in ensuring academic success.

The evidence for successful academic achievement for young LEP students points to the role of cognitive development in learning in a second language. Cummins (1984; 1986) has developed a model in a series of papers that differentiates between the language used in everyday

communicative situations and that needed in school learning. The former is known as basic interpersonal communication skills (or BICS) and the latter refers to cognitive academic language proficiency (CALP). The language of interpersonal communication is typically context-embedded and utilizes a wide range of non-linguistic features as the participants negotiate meaning (gesture, mime, facial cues, intonation, etc.). For the most part, the content of such communications is cognitively undemanding. On the other hand, school language, or CALP, is context-reduced and demands a full range of linguistic skills (syntactic complexity, technical vocabulary, knowledge of co-referential ties, discourse organization, etc.). Such language is also usually cognitively demanding, increasingly so as students are promoted through the grades and move on to college. Chall (1990) has proposed that at least a 12th grade reading level is necessary for success in the modern technological society. Her description of this level (Chall, 1990, p. 55) as "one that permits the reading of a wide variety of texts written in sophisticated, abstract language and that requires a wide range of background knowledge, critical thinking, problem-solving, and higher level processing..." exactly matches Cummins' conceptions of the demands of CALP. In a 1981 study (cited in Collier, 1989), Cummins showed that only 2 to 3 years of study were needed to develop BICS, but that CALP required 5 to 7 years of study.

On the evidence of studies of immersion and bilingual programs, Cummins (1984) has proposed the interdependence between first and second languages, a position supported by Collier (1987; 1989), Saville-Troike (1984) and Genesee (1987). Therefore, the reason that the youngest children do not reach the 50th percentiles of academic achievement tests is that they have not experienced the opportunity to develop cognitively through their first language in CALP. In other words, they have had no opportunity to transfer the skills learned through first language schooling. Similarly, older learners who arrive after the age of 12 or so, lose too much time in cognitive development and CALP as they struggle to acquire survival English and BICS. And as Collier showed, there may simply not be enough time in school for them ever to have the chance of catching up. Collier (1989) believes that at least 4 to 7 years of dual language cognitive development is necessary for the academic success of LEPs. Tentative support, albeit weaker,

comes from a study by Carlisle (1989) who compared children in regular, bilingual, and submersion (ESL) programs. He found that the bilingual program children did better on measures of syntactic maturity and productivity than the submersion children. Other studies have also indicated that literacy skills in the L1 do transfer to the L2, although it is also likely that there is a threshold level of L2 proficiency necessary for transfer to be effective (Clarke, 1978; Cziko, 1980; Edelesky, 1982; Eisterhold Carson et al., 1990).

The pedagogical implications of these findings seem to be that LEP students should be enrolled in bilingual education programs, whenever possible. Certainly, studies of language immersion programs in Canada and the USA have clearly demonstrated that students in such programs outperform their peers who are in second language only programs (Genesee, 1987; Cummins, 1984). However, the most prevalent model for bilingual instruction in the U.S.A. is that known as "transitional", meaning that children are only taught content area subjects in their native language while they are acquiring English. When their English skills are considered proficient, they are mainstreamed. Usually, children remain in these programs for about two years, although, as we have seen, the probability is that they will have developed competent BICS during that time, but will still have inadequate CALP. An obvious reason for the preference for short-term transitional programs is financial, and thus it is unlikely that the model will be abandoned. However, there are also interesting socio-cultural issues involved in these choicess, and it is to these factors I now turn.

Socio-cultural Factors

Paulston (1980) has described the bilingual education controversy in the broader context of the socio-cultural situation, as representing either an equilibrium or conflict model of social change. In the equilibrium model the goal is to make language minorities equal by providing ESL instruction through transitional bilingual programs. The status quo of society is maintained because the supremacy of English is thus affirmed as the first language is "submerged." The conflict model sees LEP students as inherently unequal because the wider social context in which they live is denigrated linguistically and culturally. When the education system does not interest

itself in maintaining the student's first language, and may even actively work to deny it, students are excluded from the reward system of jobs, opportunities, advancement and power. Cummins (1986) calls such students "disabled" because of exclusionary orientations in the cultural/linguistic approach, community participation, pedagogy and assessment.

In the 1980's bilingual education came under attack from an unexpected source: the political action group known as U.S. English, which regards immigrants' first languages as threatening to the status quo. The English Only Movement, as it has come to be known, has successfully lobbied for the passing of English Only amendments in some 16 states. Reacting perhaps to changes in the U.S. immigration laws, and international events such as the wars in South East Asia and Latin America that brought thousands of refugees and immigrants to the U.S.A., U.S. English believes that new immigrants from these third world areas do not want to assimilate and learn English. In their drive to legislate English as the official language, the group has actively promoted the elimination of all foreign languages in situations ranging from restaurant menus to 911 emergency calls to bilingual education in public schools, parent conferences and report cards (Daniels, 1990, p.6). The opposition to bilingual education is perhaps what Venezky (1990) had in mind as one particular "thorny issue" of politics, and it is certainly an issue that cannot go unchallenged. Evidence cited by English Only proponents in support of official English legislation is often egregiously inaccurate. Daniels (1990) contains an excellent discussion of the ramifications of the English Only Movement, so for brevity, I would like to mention only four issues that impact second language literacy.

In the first place, the claim that the new immigrants do not want to learn English is false. Daniels (1990) cites Crawford's 1989 study of Hispanic parents, 98% of whom felt that there children needed to learn English perfectly to be successful. The history of the U.S.also informs us that we are a nation of immigrants who have learned English perfectly by the second or third generation. Second, evidence supporting bilingual education has been misrepresented and distorted. Faulty studies have been quoted in support of the claim that bilingual education does not work (Judd, 1990). The successful Canadian experience of language immersion programs in

which children learn in their second language (usually French) has also been frequently claimed as an argument against bilingual education. However, the fact that children in Canadian immersion programs usually belong to the English language majority group, whereas most U.S. bilingual education programs serve children from language minority groups, has been completely ignored (Genesee, 1987). Socially and culturally, it is unfair to compare the experiences of children who are *adding* a second language to their majority-group first language with those of children who may well feel they are *subtracting* their minority-group first language under pressure to acquire the majority-group language. Finally, it is ironic that one possible benefit of English Only legislation does not appear to be happening. Logically it would seem that if English were to be designated the official language of the U.S.A., then there would be extra financial resources and priorities given to the teaching of English. So far, this does not appear to be a goal of U.S. English. Stalker (1990) quotes alarming estimates of 795,000 adults on waiting lists for ESL classes in California, Texas, Illinois and New York.

In conclusion, there is a distinct danger that the social, cultural and political impact of the English Only Movement may disregard the proven benefits of bilingual education, alienate new immigrants, and, ironically, deny monolingual English citizens the right to learn and practice a foreign language.

However, within the ESL profession itself, we can see how curriculum planners may also fall easily into the exclusionary mode described by Cummins (1986). Literacy has often been defined in the context of functional competence, or how much and what kinds of literacy are demanded for the specific tasks with which the learner is engaged (Venezky et al., 1990). ESL programs for adult immigrants and refugees are typically developed from a functional, competency-based perspective, but recently some scholars have begun to question the rationale for this approach. Auerbach (1986) argued that the assumptions underlying many competency-based ESL programs have not been adequately debated, in spite of growing criticisms that, while a functional approach has enabled curriculum designers to tailor programs to specific speech acts and literacy skills required by the learners, it has often been guilty of imposing a reductionist view of

"what counts" for both oral and written skills. The faulty assumptions of these programs range from inaccurate predictions about literacy requirements, to the more serious charge that competency-based ESL "socializes students for a limited range of working-class roles" (Auerbach, 1986, p. 417).

Examples abound: Weinstein (1984) examined second language literacy as a product of its social context and found that the common assumption that one of the first requirements for ESL literacy is completing forms for social security, job applications, etc., does not hold true for older Hmong women, who traditionally rely on the men in their families for such tasks. Rather, they needed basic literacy and numeracy to enable them to sell their traditional needlework crafts and thus achieve some economic independence.

McGroarty (1984) described a program which taught Chinese chefs how to communicate in English with the Chinese waiters in their restaurants, whereas in reality they should have been taught how to communicate with suppliers in order to complain about bad meat, or get the best prices for their produce.

Survival ESL texts are full of examples of what I call "toilet bowl English", or language that teaches immigrants how to perform janitorial work place jobs only. These texts rarely encourage new immigrants to question their roles or to encourage a problem-solving approach to their lives (Auerbach and Burgess, 1985). In spite of these criticisms, federal assistance programs now require that refugees must enroll in a competency-based ESL program in order to receive assistance, with the result that standardized survival texts are proliferating.

Mainstream education which includes ESL students must also guard against false assumptions about the context in which these students need to use their literacy skills. For example, all K-12 teachers need to be aware that LEP children may still have limited proficiency in oral and wrtitten academic discourse even though they have been judged fluent in conversational English (Saville-Troike, 1984). They should also become familiar with the classroom behavior patterns of LEP minority children. Cheng (1987) reported that teachers who are not aware that the social context of Asian culture teaches children to be quietly respectful and obedient in class

may judge them falsely as passive, dull, uninterested learners. Science and engineering professors in higher education should realise that their foreign graduate students will find job-related oral and written communication skills to be more important than technical skills after graduation, and should ensure that these skills are adequately developed in their technical courses (Bridgeman and Carlson, 1983; Huckin and Olsen, 1984; Weiland et al., 1990).

Academic Competence: Tasks and Standards Required

If, as was claimed above, literacy for academic success is often defined too narrowly for LEP students, we need to examine the specific tasks demanded from LEP or ESL students as demonstrations of academic and English proficiency. For each educational level (K-12, undergraduate, graduate) I will briefly summarize what the research literature has shown to be the tasks demanded of students, and will discuss the problems created at the next, higher level when certain skills are not adequately developed. Finally, I will examine the consequences of this neglect for both the learners themselves and society in general as these learners move into employment.

K-12

In truth, combining these grades is inappropriate, given the enormous changes in physical and cognitive development that take place between the ages of five and eighteen. However, these are the years of "public school education," when the states largely mandate the type of education delivered to these students, and it is therefore convenient to consider them as one level. They are the years when schooling begins to have an impact on language use and ways of knowing. Language becomes progressively more decontextualized, and CALP replaces BICS as the preferred demonstration mode for academic proficiency. Much of what happens in elementary schools, particularly those that adopt a "whole language" approach, is appropriate for both first and second language development. However, if teachers and administrators are not familiar with patterns of second language development and sociolinguistics they may not fully appreciate the language learning problems of their LEP students. Even the universal language of mathematics, for example, poses additional challenges of vocabulary and grammatical knowledge when

presented in the form of word problems. Similarly, facility with conversational grammar forms will not necessarily transfer to the complex structures needed in written prose. Saville-Troike (1984) found that her academically successful LEP elementary students did not require grammatical accuracy. Unfortunately, in some interpretations of whole language, or communicative language teaching approaches, teaching grammatical accuracy has been explicitly rejected as useless, or counterproductive (Krashen, 1981). If students at this level are allowed to believe that grammatical accuracy is not important, or that all ideas can be expressed both orally and in writing through BICS, then their access to higher educational opportunities will be limited because they will not reach the required norms on the standardized tests or writing assignments by which they will be assessed. Their lack of CALP will also limit their progress if they enter post secondary education by assigning them to "remedial" writing courses. Sadly, many do not survive.

Undergraduate and Graduate Education

Several studies have investigated the oral and written language tasks required of undergraduates and graduates in several disciplines. Among the relevant studies are those by Bridgeman and Carlson (1983), Vann, Meyer and Lorenz (1984), Johns (1981), and Christison and Krahnke (1986).

In a survey of 190 departments in 34 colleges in North America, Bridgeman and Carlson (1983) found that writing assignments varied according to department, but that even those departments which did not have heavy writing loads required such products as laboratory reports and short summaries. The more verbally explicated fields, such as business, psychology and undergraduate English, assigned longer research papers. Preferred styles of writing also differed according to discipline, with the engineering and science fields making more use of descriptive writing, and business, psychology and undergraduate English assigning tasks that required arguing for a point of view.

A significant finding of this study was that faculty members reported that they weighted global features such as content and organization more heavily in their evaluation of writing. They also felt that there was little difference between native and non-native speakers of English at the

discourse level, but that non-native English speakers were considerably less adept than native speakers at the sentence and word level. The majority of departments reported that they used exactly the same standards to evaluate the writing of both native and non-native speakers, although one-third of the departments surveyed said that they evaluated non-native speakers more leniently. Vann, Meyer and Lorenz (1984) also found that faculty generally regarded sentence level errors as serious only if they interfered with meaning.

Yet writing skills are not always considered the most crucial language skills in academic study, according to both faculty and non-native English students. Johns (1981) discovered that reading and listening skills were rated as more important by the faculty she surveyed. Powers (1986) supported these findings in his own survey of listening skill requirements in which he found that listening was rated second in importance after reading, with the ability to comprehend academic lectures considered to be the most important listening skill. Essential skills identified were the ability to identify main ideas and the relationships between them, note-taking skills, and identifying supporting examples. In all areas, non-native English speakers were perceived as having considerably more difficulty than native-speakers. Obviously, academic lectures rely on spoken English in the CALP mode, and share many of the formal features of written academic prose. Christison and Krahnke (1986) asked ESL students themselves what they had most difficulty with, and the majority reported that the spoken English of the classroom caused them the most problems initially. Keep in mind that many of the ESL undergraduates who have graduated from American high schools have no problems with spoken English (BICS), or so they feel, and it is harder for them to locate the source of their difficulties, especially as many have never developed an awareness of the features of spoken lecture English lecture discourse, which is more akin to CALP.

To compound the problem, ESL undergraduate students are often classed as "basic writers" and assigned to Developmental English or ESL courses. To students who have graduated from their high school ESL program and have been mainstreamed into regular courses in high school, this is a shock to their self-esteem. Their lack of academic literacy skills often delays their progress

through required course sequences, with the result that many of them drop-out. They are classic examples of the disabled students described by Cummins (1986) who have been educated in a subtractive linguistic and cultural environment where the goal has been to "legitimize" them by ignoring their first language development.

In graduate level education, about 26% of doctoral doctoral degrees are awarded to foreign nationals (DePalma, 1990). In engineering colleges across the nation, over 50% of graduate students are foreigners. The majority of them come from the People's Republic of China, Taiwan, Korea and India. With the exception of many of the Indian students, English is a second language which, for the most part, has been studied through a grammar-translation approach. The goal has usually to reach a score of 500-550 on TOEFL in order to qualify for admission, and because TOEFL does not measure productive, communicative skills, the focus of English classes is usually on memorizing rules and vocabulary lists, and learning strategies to pass the listening comprehension section where students listen to short dialogues and mini lectures as they read multiple choice written questions.

Consequently, when these graduate students arrive in the USA, they face enormous cultural and academic differences. For the most part their academic experiences have been in elitist systems that emphasize a narrow curriculum studied in depth, in contrast to the more egalitarian US system which emphasizes a much broader but shallower curriculum. They do not know how to behave in the more relaxed and informal academic atmosphere in this country to the point that we can say they lack academic literacy: oral, written and cultural. They often tell us that they have never had to write critical reviews, or argue for or against a point of view in a paper in which they are expected to synthesize information drawn from several sources. Writing summaries of authors' ideas without "plagiarizing" is extremely difficult fot them, partly because of their limited language skills, and partly because in some cultures it is a sign of respect to reproduce the words of a published scholar. They need a great deal of practice in academic writing, but there is evidence that the faculty in engineering colleges do not assign much writing at all, and eventually write most of their students theses (Bridgeman and Carlson, 1983; Weiland et al., 1990).

So far as interactive language skills are concerned, at the graduate level we usually face exactly the reverse of the K - 12 and undergraduate situation: the students' CALP is adequate because of their well-developed academic backgrounds, but they are frequently almost entirely lacking in BICS. Their academic English focus has never allowed them to develop functional communicative skills, and when they arrive on campus they are often unable to comprehend spoken English, let alone the idioms, slang and jargon of regular interactions. Unfortunately, because of their problems in comprehending lectures, the international students spend all their time studying and trying to cope with heavy reading loads at their slower second language reading rates. They do not interact with Americans, and in many cases do not have the opportunity because their class and lab mates probably come from their own countries. It is not unusual for Chinese students to spend less than 30 minutes a day speaking English (Jenkins and Sole, 1990).

Many international graduate students support their education through assistantships, and this puts them into direct contact with undergraduates in the classroom. The "Foreign TA Problem" has been well documented (see for example, Bailey, Pialorsi, and Zukowski/Faust, 1984), Generally, three areas are problematic: language, classroom presentation skills, and cultural differences. The most often cited problem relates to spoken language: the TAs have poor pronunciation skills, poor vocabulary, and poor listening skills. Their teaching styles come from cultures where teachers do not interact informally within the classroom with students, and where there is more homogeneity of aptitude and background preparation among students. The effect is a total mismatch between the expectations of the undergraduates and the TAs as to teaching style, behavior, and goals.

Because of these problems, most faculty report that they would much prefer to work with American students, if they could get them (Diamond and Grey, 1987) However, there is often little provision for helping the international graduate students learn American academic literacy: ESL programs are too frequently considered as remediation programs and do not offer academic credit; faculty are unaware of the cultural differences involved, or, worse, are insensitive; departments are unwilling to allow students to take lighter loads or delay courses while they

develop their language proficiency. One is left with the unavoidable impression that the international students are here in fields such as engineering and the sciences because we cannot attract U.S. citizens to graduate education, or keep our ESL minorities in school. Frankly, the graduate and research programs in Colleges of Engineering throughout the country would collapse without the international students, and the implications for the future of academia and the technological professions are serious.

Bridgeman and Carlson's 1983 survey of writing tasks hinted at the problem we have not yet addressed either in education or the professions: the faculty surveyed were unanimous in agreeing that although writing skills were important in graduate education, they were far more important in subsequent employment. Similarly, Huckin and Olsen (1984) cited reports from the journal *Engineering Education* that indicate recent graduates listed oral and written skills among the top ten essential skills for engineering careers in industry. Furthermore, the fact that currently over 50% of engineering graduate students are foreign nationals means that the faculty of the not too distant future will also be foreign. If they have not had opportunities to improve their communication skills at the undergraduate or graduate level, their impact on academia and industry will not be impressive. In general, academia has taken a head-in-the-sand approach, refusing to believe that many foreign nationals will remain in the U.S.A. to become the faculty of the future, and adhering to the old principle that it is the English/ESL Department's job to teach writing and communication skills. Industry has been a little more aware of the problem and many major corporations now offer their own educational and professional development courses to "remediate" what the education system failed to provide.

Those of us who have long worked with international students are becoming aware of a potential discriminatory aspect to the problem. Our students who remain in the United States to find employment, particularly in technology, are telling us that they face a glass ceiling because their communication skills are not adequate. They see others with comparable technical skills promoted as project managers while they themselves remain as laboratory technicians. A Dean of a College of Engineering at a major American university, himself an Asian American, used the

phrase "technological coolies" to describe the self-perceptions of the Asian engineers about their professional prospects (P. Chung, personal communication, November 10, 1990). We need to do more research in order to discover whether such perceptions are accurate, and if they are, to develop strategies for promoting communication and literacy skills to the highest level.

Conclusions and Recommendations

This brief survey of second language and literacy programs from Kindergarten through employment points to an inescapable conclusion: at each level, our definitions of English as a second language literacy are too limited in that they are based on a myopic view of the functional requirements within each separate level. The result is that the problems that are ignored, glossed over, or not recognized at one level either have to be remediated at the next level of education, or worse, put a cap on the potential development of each individual. Unfortunately, students fall too far behind when their language proficiency is poor, and there is increasing failure, drop-out, frustration and discrimination as a result. Obviously, this has long been said about education in general and minority education in particular, but I believe the research literature on second language acquisition has much to offer in support of empowerment intervention models for all neglected populations. For one thing, the ESL problem is not limited to low SES groups, as is much of the research on minority education, and therefore it has the potential for reaching across the spectrum. Let us however, look at some specific suggestions that follow from our discussion of the issues that impact ESL literacy at each educational level as we attempt to endorse the national language policy adopted by the Conference on College Composition and Communication in 1988. Some of these recommendations may be implemented by each of us in our own work, while others will need the force of our professional organizations behind them to bring about change

K-12 and Adult Education

Resist those who would make literacy in the first and second language a political issue by mobilizing professional organizations to fight the English Only Movement, using as evidence the best research studies in the proper context. Continue to emphasize that bilingual education or submersion (ESL) programs are only "better" in terms of whether we are working in an additive or

subtractive language environment. Accept that both have a role, depending on the student variables. Where necessary, provide bilingual education programs for populations that benefit most from dual language instruction (the very youngest, the oldest, low SES groups or recent immigrants who do not use English in the home). In other cases (for example where there is parental opposition to bilingual programs), provide ESL programs.

At all times, integrate ESL instruction with content area learning. Provide ample opportunities to develop both BICS and CALP. Where children would obviously benefit from additional content area help in their first language, let us provide it. Adopt the philosophy that ESL learning is a process of "raising consciousness" about the role of language in learning and in life. As part of this approach, adequate definitions of communicative competence should include sociolinguistic competence, discourse competence, grammatical competence and strategic competence (Canale, 1983)

Incorporate parental and community involvement into the child's second language learning. Family literacy and cultural orientation programs can be developed so that the system can build on the educational attitudes and values of the LEP families to reduce alienation and encourage additive bilingualism. Cummins (1986) and Lucas, Henze, & Donato, (1990) offer descriptions and characteristics of "empowerment models of bilingual and ESL programs.

Perhaps most important, recognize that ESL and bilingual education teachers should be trained professionals. There are simply too many untrained or "grandfathered" ESL teachers and volunteers in the system at the moment. Teaching a language is a highly professional skill that should only be undertaken after proper training in second language learning theories, ESL methodology, linguistics, intercultural communication and phonology, to give a bare bones summary. Teacher preparation programs exist, and only those properly trained should be hired. We can no longer afford to support the "I speak English therefore I can teach English" mentality. Give teachers who wish to gain ESL education credentials or take language and linguistics courses as much support as possible.

Undergraduate and Graduate Education

Support Writing Across the Curriculum movements on our campuses. Encourage them to broaden the scope of their workshops to include writing and communication for ESL students. Encourage all faculty to join their colleagues who are already committed to the belief that we are all equally responsible for developing oral and literate proficiency from a perspective of "literacy for the future," whether for graduate education or professional employment.

Provide ESL students with continuing opportunities to develop CALP. Encourage the development of English for Specific Purpose courses offered perhaps as paired courses with content area departments, as well as all-purpose ESL and basic writing.

Expand our efforts to incorporate international graduate students into the academic community by providing them with full access to orientation and cultural awareness programs on campus. Recognize that international students are both discriminated against, and discriminating themselves, in their interactions with others. "International Education" is a meaningless phrase if the international graduate students on campus are ignored and are left to organize themselves into isolated ethnic communities in which English is virtually a foreign language used only for academic lectures and meetings with advisors. Likewise, we cannot assume that international students with high TOEFL scores will be fluent in English. They will need courses to develop the language of their BICS and intercultural communications skills.

Recognize that international graduate students who are teaching assistants have very special needs. Do not allow them to teach (in fact, do not allow **any** TA to teach, even if English is the first language) without requiring credit courses in teaching and communication skills. Adopt a department specific model rather than a generic course so that students can learn the discourse structure of their discipline as well as the accepted oral modes of teaching and explaining the content matter.

As in the public school system, provide full credit, respect and recognition for ESL and developmental courses and their faculty. Far too many ESL faculty are employed in non-tenure

track positions and are not regarded as professionals by the administration or colleagues. We should no longer tolerate such a situation.

Finally, make sure that the faculty and administration are fully informed of the reality of foreign student education in the U.S.A. Many will not go home. They will remain to become the professors, professional managers and employees of the future. They should be fully prepared for these positions.

Let us continue to debate the issues discussed here. We have barely scratched the surface, and are far from fulfilling the National Language Policy adopted by CCCC in 1988. But if we can organize ourselves to ensure that educational decisions and practices derive from sound research, we will have made a start.

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